QUALITY ASSURANCE/QUALITY CONTROL

SM 4020 – 2011 *(As published in SM 22nd Edition)*

Facility Name: _____ LAB ID: _____

Assessor Name: _____ Analyst Name: _____ Inspection Date: _____

Relevant Aspect of Standards	Method Reference	Y	N	N/A	Comments
(1) If acceptance criteria for a laboratory fortified blank used for the Initial Demonstration of Capability were not specified in the test method, were initial recovery limits calculated as follows: Initial Recovery Limits = Mean ± (5.84 x Standard Deviation) NOTE: Determination of acceptance criteria using this formula is not applicable when LFB is not used (ex: oxygen and pH) (See 4020:I).	SM4040.B.1.a				
(2) Before analyzing samples was the Method Detection Limit (MDL) determined for each analyte in each matrix?	SM4020.B.1.b				
(3) Were MDLs determined by analyzing a QC sample subjected to all preparation steps?	SM4020.B.1.b				
(4) Were MDLs verified at least annually? NOTE: Not required when test results are not reported outside of the calibration range (2003 NELAC Chapter 5 Appendix D.1.2.1).	SM4020.B.1.b				
(5) Was quantitation at the Minimum Reporting Level (MRL, also called LOQ) verified initially and at least quarterly ("*preferably*" daily) by analyzing a QC sample (subjected to all sample preparation steps) spiked at a level 1 to 2 times the MRL?	SM4020.B.1.c				
(6) Is MRL verification limit documented in the QA documentation?	SM4020.B.1.c				
(7) Did the initial calibration include at least 1 blank and 3 calibration standards (one standard should be ≤ MRL)?	SM4020.B.2.a				
(8) If a second-order (quadratic) fit was used, were 1 blank and at least 5 standards (one standard should be ≤ MRL) used?	SM4020.B.2.a				
(9) Were correlation coefficients for standard concentration-to-instrument response ≥ 0.995? ("should be")	SM4020.B.2.a				
(10) Was each calibration point back calculated to verify the instrument value was within documented acceptance criteria?	SM4020.B.2.a				
(11) Were initial calibrations performed daily or at the beginning of each new batch of samples unless method permits calibration verification between batches?	SM4020.B.2.a				

Additional Notes:

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Relevant Aspect of Standards	Method Reference	Y	N	N/A	Comments
(12) INITIAL CALIBRATION VERIFICATION: Did initial calibration verification with second source agree within ± 15%?	SM4020.B.2.b				
(13)CONTINUING CALIBRATION VERIFICATION: Were calibrations verified during a run by periodically analyzing a same source standard with results agreeing within ± 10%?	SM4020.B.2.b				
(14) Was the concentration of the calibration verification standards varied over the calibration range to determine detector response (“should”)?	SM4020.B.2.b				
(15) If calibration verification fails, does the laboratory: □ immediately cease analyzing samples and initiate corrective action? □ then re-analyze the calibration standard and blank? □ if re-analysis passes, continue analyses? □ if re-analysis fails, repeat initial calibration and re-analyze samples run since the last acceptable calibration verification?	SM4020.B.2.b				
(16) Was at least one Laboratory Fortified Matrix or one Laboratory Fortified Matrix/Laboratory Fortified Matrix Duplicate (LFM/LFMD) prepared with each preparation batch of 20 or fewer samples unless specified otherwise in the method? Exceptions: For all SM4500-CO2, all SM4500-Cl (TRC), SM4500-H+, SM4500-NO3-B, and all SM-4500-O (DO) methods were duplicates of the sample analyzed?	SM4020.B.2.g				
(17) Did the LFM fortification not increase sample volume by more than 5%?	SM4020.B.2.g				
(18) Are control charts plotted and control limits determined?					
Refer to Table 4020:I. Minimum Quality Control for Methods in Part 4000					
Additional Notes:					